Miscellaneous Paper R-95-2
October 1995

US Army Corps of Engineers
Waterways Experiment Station

Natural Resources Research Program

An Assessment of Natural Resources Managed by the Corps of Engineers: A Plan of Study

by R. Scott Jackson, Chester O. Martin, Richard L. Kasul, John Tingle

Prepared for Headquarters, U.S. Army Corps of Engineers

PRINTED ON RECYCLED PAPER

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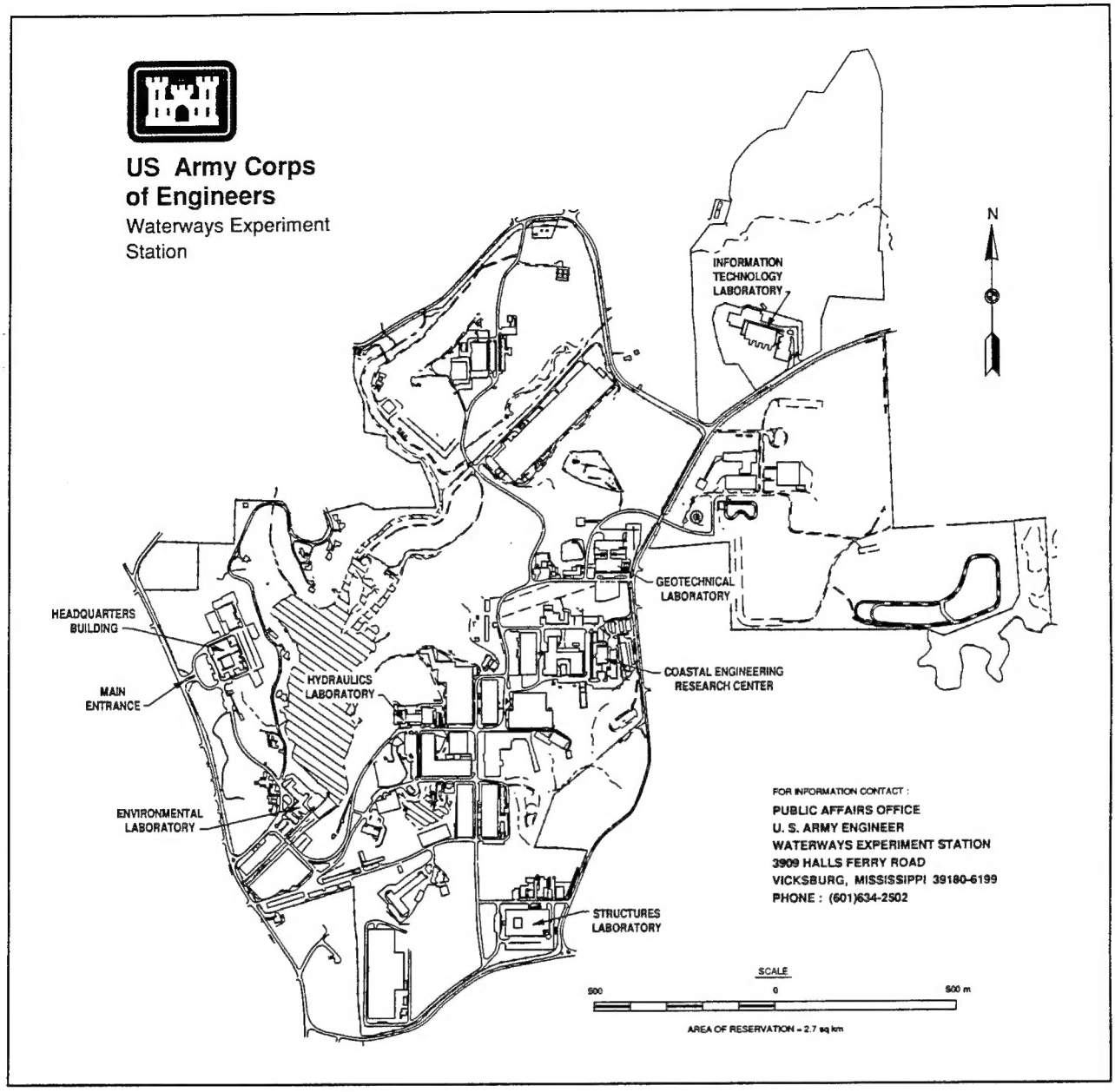
Final report

Approved for public release; distribution is unlimited

Prepared for U.S. Army Corps of Engineers
Washington, DC 20314-1000



Waterways Experiment Station Cataloging-in-Publication Data

An assessment of natural resources managed by the Corps of Engineers : a plan of study / by R. Scott Jackson ... [et al.] ; prepared for U.S. Army Corps of Engineers.

30 p. : ill. ; 28 cm. -- (Miscellaneous paper ; R-95-2)

Includes bibliographic references.

1. Natural resources -- United States. 2. Conservation of natural resources -- United States. 3. Endangered species -- United States. 4. Water resources development -- United States. I. Jackson, R. Scott. II. United States. Army. Corps of Engineers. III. U.S. Amy Engineer Waterways Experiment Station. IV. Natural Resources Research Program (US Army Corps of Engineers) V. Miscellaneous paper (U.S. Army Engineer Waterways Experiment Station) ; R-95-2.

TA7 W34m no.R-95-2

Contents

Preface iv

1—Introduction 1

Objective 1
Description of Work 2

2—Background 4

3—Study Tasks 7

Steering Committee 7
Task 1: Identify Regionally and Nationally Significant Resources 8
Rationale 8
Objectives 8
Approach 8
Task 2: Identify CE Natural Resource Management Practices and Priorities 10
Rationale 10
Objectives 10
Approach 10
Task 3: Utilize Task 1 and 2 Information: A Case Study Assessment of the Management of Threatened and Endangered Species on CE Projects 11
Rationale 11
Objectives 12
Approach 12
Benefits 13
Coordination 13

References 16

Bibliography 17

Appendix A: Steering Committee Report A1

SF 298

Preface

The work reported herein was conducted as part of the Natural Resources Research Program (NRRP). The NRRP is sponsored by the Headquarters, U.S. Army Corps of Engineers (HQUSACE), and is assigned to the U.S. Army Engineer Waterways Experiment Station (WES) under the purview of the Environmental Laboratory (EL). Funding was provided under Department of the Army Appropriation 96X3122, General Investigation. The NRRP is managed under the Environmental Resources Research and Assistance Programs (ERRAP), Mr. J. L. Decell, Manager. Mr. Russell K. Tillman was Assistant Manager, ERRAP, for the NRRP. Technical Monitors during this study were Ms. Judith Rice, Mr. David J. Wahus, and Mr. Robert Daniel, HQUSACE.

The work reported herein was conducted by Mr. Chester O. Martin, Mr. Richard L. Kasul, Mr. R. Scott Jackson, and Mr. John Tingle, Natural Resources Division (NRD), EL. The work was conducted under the direct supervision of Mr. H. Roger Hamilton, Chief, Resource Analysis Branch, and under the general supervision of Dr. Robert M. Engler, Chief, NRD, and Dr. John Keeley, Director, EL. Technical review of the report was provided by Mr. H. Roger Hamilton, Mr. Hollis H. Allen, Mr. Jim Henderson, and Dr. Wilma Mitchell.

The authors express their appreciation to the members of the Steering Committee who provided important guidance and encouragement to the authors in the formulation of this study plan and the study approach presented herein. Steering Committee Members are Mr. Phil Benge, Walla Walla District; Mr. David Brady, Savannah District; Mr. Jude Harrington, Raystown Lake, Baltimore District; Mr. Roy Proffitt, Lake Sakakawea, Omaha District; and Mr. Don Weise, Fort Worth District.

At the time of publication of this report, Director of WES was Dr. Robert W. Whalin. Commander was COL Bruce K. Howard, EN.

This report should be cited as follows:

Jackson, R. S., Martin, C. O., Kasul, R. L., and Tingle, J. (1995). "An assessment of natural resources managed by the Corps of Engineers: A plan of study," Miscellaneous Paper R-95-2, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

1 Introduction

Natural resources managed by the U.S. Army Corps of Engineers (CE) constitute an important national heritage that must meet constantly changing needs and priorities. However, there is presently insufficient information regarding the overall status of CE natural resources, the significance of these resources at the national and regional levels, and the ability of current programs to satisfy changing trends in national priorities while continuing to meet primary mission objectives. This has limited the Corps' ability to anticipate the effect of CE management actions on resources of the nation, and hinders the ability to effectively respond to nationally important natural resource priorities.

This work unit represents a coordinated, multidisciplinary effort to examine CE natural resources from the perspective of significance and to develop a process whereby CE personnel can evaluate their resources and establish priorities for funding and management at the national, regional, and local levels. The primary study team is composed of recreation, wildlife, and fisheries specialists from the Natural Resources Division, U.S. Army Engineer Waterways Experiment Station. A steering committee composed of selected Corps District and Division personnel will provide operational guidance throughout the study.

Objective

The objective of this work unit is to provide the information necessary to assess the regional and national significance of natural resources on CE water resource development projects. Information sources will be comprehensively developed on the regional and national significance of natural resources and on CE resource management practices and priorities. In addition, a pilot study will be performed to demonstrate the assessment process for selected resources. The proposed research consists of three tasks, as illustrated in Figure 1. The tasks will address the following questions:

- What natural resources are available at CE projects?
- How are these resources nationally/regionally significant?

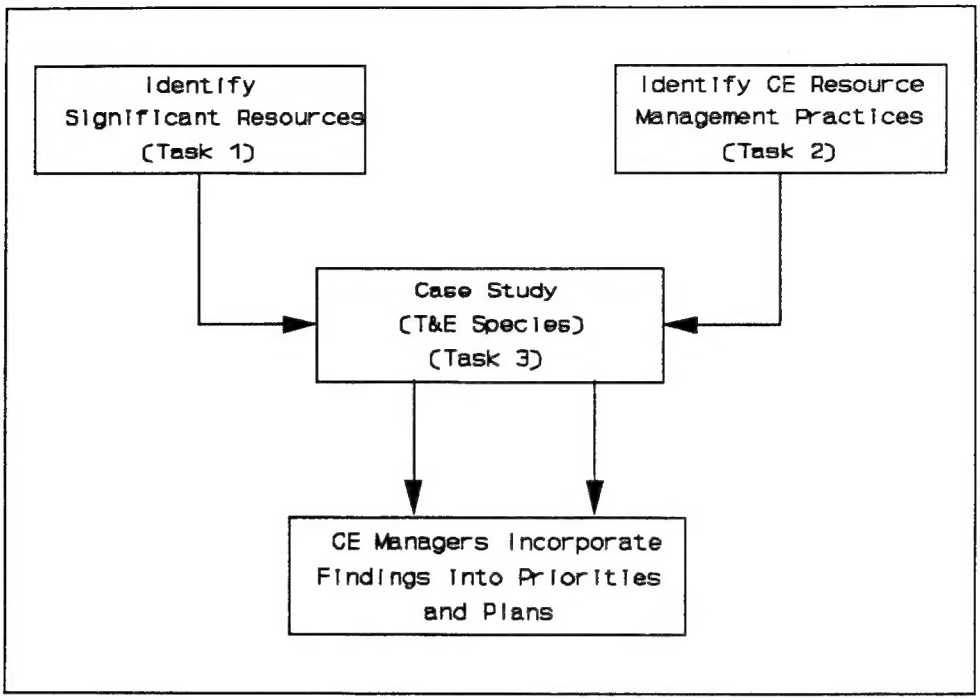


Figure 1. Work unit study process

- What are the demands for these resources?
- What actions can be taken to improve the availability and quality of significant resources?

Description of Work

The purpose of this section is to summarize the study approach. A more detailed discussion of study tasks is provided later in this document.

The first task required to answer the questions listed above is to identify the regional and national significance of natural resources managed by the CE. This task will be accomplished by reviewing relevant assessments and other documents that evaluate the significance of selected resources.

The second task is a survey of natural resource management activities at a sample of CE projects. The purpose of this task is to describe natural resource management activities occurring at CE projects and to identify management opportunities for significant resources.

The third task is a case study. The purpose of the case study is to identify the significance of CE management activities and evaluate CE resources for future management potential for a specific resource, using information derived from Tasks 1 and 2.

A case study will be performed to evaluate and demonstrate the assessment process. A review of CE natural resources indicated several potential resources that meet the following requirements:

- Nationally significant.
- The CE has a known management role.
- Sufficient data on the resource are available.

The resource initially identified as a candidate for the case study element was the bald eagle (*Haliaeetus leucocephalus*). However, the steering committee objected to using this resource for the case study because most management initiatives benefiting the bald eagle on CE projects have been either incidental to other project requirements or reactive instead of proactive. In response to a recommendation of the steering committee, the case study will focus on the management of threatened and endangered species on CE projects. An examination of CE issues regarding all threatened and endangered species, rather than a single species, will have broader application to projects nationwide. Also, this will allow a more comprehensive evaluation of the assessment process. Findings from the survey of CE management practices and priorities (Task 2) will be used to select species and region(s) to address in Task 3.

The findings of the evaluation of regional and national significance (Task 1) will be used to identify significant resources with potential for additional case studies. Following the completion of Task 3, recommendations for additional case studies will be formulated based on cost and time constraints and will be presented to the steering committee for potential addition to this study effort.

2 Background

CE Districts and projects have historically been involved in a variety of natural resource management programs of national concern. For example, water-based recreation is a national pastime for a large segment of the recreating public, and CE projects have traditionally been major providers nationwide. However, trends in boating use have changed substantially over the past 20 years, and strategies are needed to make the necessary adjustments to satisfy changing demands. Also, CE operational projects have traditionally provided regionally important public fishing and hunting areas, but there is an increasing demand for nonconsumptive fish and wildlife recreation opportunities on CE lands (Jackson and Martin 1993).

The development of multipurpose projects during the 1940s and 1950s typically occurred in rural settings. At that time, urban sprawl had just begun to affect the American landscape (U.S. Army Corps of Engineers 1990). Today, CE projects throughout the nation are becoming increasingly affected by urbanization and associated land use changes. These influences, discussed below, are related to changing patterns of regional supply and demand for natural resources.

The U.S. Forest Service recently published a comprehensive assessment of fish, wildlife, and habitat needs in the United States (Flather and Hoekstra 1989). For this study, current trends in populations, users, and harvest were derived from a database that was compiled in cooperation with State and Federal wildlife agencies. An assessment of national trends in outdoor recreation supply and demand was also completed by the Forest Service in 1989 (Cordell et al. 1990). The supply of public and private recreation resources was developed from national inventory data. Trends in recreation demand were based on national recreation participation surveys and population projections. Results of these studies were used to improve recreation and wilderness resources managed by the Forest Service. Although data presented in the Forest Service studies did not include CE projects (except possibly for some lands leased to State agencies), it can be assumed that national and regional trends presented would be generally true for other lands as well, especially in respect to user demand (Jackson and Martin 1993).

CE natural resources provide recreational opportunities for millions of Americans, and they are particularly valuable because of their proximity to

population centers. This results in significant recreational use on a limited resource base. The CE supplies 30 percent of the recreational opportunities provided by all Federal agencies on 1.5 percent of the over 690 million acres in the Federal estate available for recreation (Task Force on Outdoor Recreation Resources and Opportunities 1986). Recent trends indicate that recreational use of parks close to population centers has increased, while use of remote parks has decreased (Seihl and Szwak 1988). This trend indicates that there will be increasing demands for existing CE natural resources and associated facilities.

Recreational activity in the United States is projected to significantly increase in the next 50 years, and the supply of recreational opportunities adjacent to population centers will not keep pace with demand (Cordell et al. 1990). This situation has raised concerns on the part of CE managers regarding the maintenance of quality recreation opportunities on intensively used recreation sites. This concern will affect management of recreational access to CE lands and waters through development and implementation of lakeshore management plans and marina feasibility studies, operational management plans, and master plans.

Boating is a major recreational activity at CE projects, with 27 percent of visitors to CE projects engaged in boating activities in 1991 (U.S. Army Corps of Engineers 1990). Participation in boating has increased significantly in the past 20 years. The number of recreational boats owned by Americans increased from 9.6 million in 1973 to over 19 million in 1989. A 1982-83 National Recreation Survey reported that 28 percent of all Americans participate in some type of boating activity (Cordell et al. 1990).

In respect to national supply of fish and wildlife resources, the following general trends have been identified: big game (increasing); small game (stable to decreasing); furbearers (stable to increasing); waterfowl (decreasing); migratory songbirds (decreasing); raptors (highly variable, some species decreasing); and fishes (increasing for hatchery-raised sport fish, stable to decreasing for others). Details are provided in Flather and Hoeskstra (1989) and Jackson and Martin (1993).

Existing national and regional surveys indicate that natural resource participation patterns have recently changed. They generally show declining numbers of hunters, increasing numbers of anglers, and greater participation in nonconsumptive natural resource activities. Surveys indicate that public lands are critical to nonconsumptive fish and wildlife recreation and are becoming increasingly important (Flather and Hoekstra 1989).

Although hunting and fishing continue to be important activities on CE lands, projects have recently become involved in other natural resource programs of national significance. These include the North American Waterfowl Management Plan and the Watchable Wildlife Program. Most Corps projects have participated in the National Mid-Winter Eagle Survey for at least 10 years. Projects have also served as demonstration sites for Ducks

Unlimited and Quail Unlimited habitat improvement projects and for the CE Wetlands Research Program.

The preceding discussion of natural resource trends demonstrates that national requirements served by the Corps of Engineers natural resource management program have changed over the years and will continue to change in the future. Continued urbanization adjacent to CE projects, population shifts, changes in demographics, and rapidly evolving institutional partnerships will continue to place new demands on the program.

3 Study Tasks

The purpose of this section is to summarize work unit activities performed to date, describe proposed study tasks for this work unit, and present a rationale for each task.

Steering Committee

In June 1994 a steering committee was formed by Ms. Judy Rice, Headquarters, USACE, to provide recommendations on the scope and direction of this work unit. The committee consisted of the following CE district and project personnel:

Name	Office
Phil Benge	Walla Walla District
David Brady	Savannah District
Jude Harrington	Raystown Lake, Baltimore District
Roy Proffitt	Lake Sakakawea, Omaha District
Don Weise	Fort Worth District

On 2-5 August 1994 the committee met in Vicksburg, MS, to discuss the work unit with WES staff, review the draft study plan, and formulate recommendations for the direction of the work. A report was prepared by the committee and is provided as Appendix A. The authors then revised the draft plan in response to the recommendations of the committee.

The steering committee agreed that there was a need for the work unit and made a number of recommendations regarding the scope and direction of the work. The committee made two major recommendations. First, they recommended that the work unit "focus solely on the natural resource base and address recreation as one of the activities supported by CE natural resources." In addition, they recommended that the word "recreation" be removed from the work unit title to reflect this recommendation. Furthermore, the committee identified eight categories of natural resources that should be addressed in the effort, and recommended that cultural and paleontological resources be addressed if funds permit. A discussion of the eight categories of natural

resources recommended by the committee is presented in the description of study tasks later in this document. The second major recommendation by the committee was that the case study (Task 3) address threatened and endangered species instead of using the bald eagle as originally proposed in the draft study plan. The rationale for these major recommendations, the suggested guiding principles for the effort, and detailed recommendations for each task are included in the steering committee report (Appendix A).

Task 1: Identify Regionally and Nationally Significant Resources

Rationale

Public and private organizations with natural resource management responsibility have performed systematic assessments of the condition and importance of various resources in order to formulate organizational objectives, priorities, and policies. In addition, some resource assessments are performed primarily for scientific purposes. Collectively, the findings of these assessments can be used to evaluate the condition and significance of recreation and natural resources regionally and nationally. Furthermore, some assessments such as the North American Waterfowl Management Plan provide sufficient specificity and detail to evaluate the functional role of CE projects in sustaining the resource.

Objectives

The objectives of this task are to

a. Identify existing Federal, regional, state, and nonprofit organization studies and programs that are used to determine the significance of natural resource and recreation programs or activities.

b. Perform a comparative analysis of these studies and programs to provide generalizations about national and regional resource priorities.

c. Develop a procedure for evaluating the significance of natural resources.

Approach

A search of existing natural resource assessments will be performed. The search will focus on resources that are typically associated with CE projects (such as lakes, wetlands, rivers, and riparian areas) and key environmental resources such as fish and wildlife. Significance criteria used by other agencies, the Nature Conservancy and Natural Heritage Programs, among others,

will be identified and analyzed. This task will make maximum use of existing data to minimize costs and duplication of effort.

A profile of each assessment will be developed that will, if available, provide the following information:

- Name of the study or program.
- Goals and objectives.
- Geographic scope.
- Overview of the study or program.
- Criteria for significance/priority determination.
- Significance/priority determination process.
- Findings/conclusions of the study or program.
- Lessons learned and potential applications.
- Bibliographic information.
- Point of contact.

An evaluation of identified assessments will be performed to detect common findings between assessments and identify similarities and differences in assessment criteria and procedures. Assessment findings will be summarized by resource type and region.

The Institute for Water Resources (IWR) is performing related work in the area of determining natural resource significance, which accomplishes much of what is proposed in this task. The work is included in the Evaluation of Environmental Investments Research Program work unit "Determining and Describing Environmental Significance" (Work Unit No. 32915). Discussions with Mr. Darrell Nolton (the work unit principal investigator) indicate that the IWR work unit complements and may contribute substantially to the product envisioned as Task 1 in this effort.

Once completed, products resulting from the IWR effort will be evaluated to determine the extent to which the products address the objectives of this task. Any savings in study resources realized by incorporating the IWR work into Task 1 will be put toward the activities to be performed in Task 2.

Task 2: Identify CE Natural Resource Management Practices and Priorities

Rationale

Individual CE projects are actively managed for a variety of natural resources that include plant and animal species and their aquatic, wetland (including riparian), and terrestrial habitats. Management focus and effort varies from project to project depending on the types of natural resources that are available, on the condition and needs of those resources, and on visitor demand. Informed choices regarding which resources to manage and at what level to manage them must generally be made at the project level. The resource management decisions made at each project contribute to the overall natural resource management emphasis of the CE. A measure of CE natural resource priorities both nationally and regionally is the overall distribution and emphasis of natural resource management activity at all CE projects.

Objectives

This task will focus on identifying the emphasis of natural resource management activities at CE projects. Task objectives are to

a. Document the types of natural resources that are actively managed on CE project lands.

b. Determine the overall scope and intensity of management activities associated with these resources.

c. Identify changes in natural resource management planned or anticipated to occur at CE projects in the next 10 years.

d. Identify policies and institutional mores that are perceived as roadblocks to progressive natural resources stewardship.

Approach

A representative sample of approximately 20 to 30 percent of Corps projects will be surveyed nationally. Survey procedures will be pretested at two to four projects. The survey will target natural resource personnel at CE projects actively involved in the management of wildlife, fisheries, and recreation resources as identified by the CE project manager. The survey will be used to identify the principal resources actively managed at each project by the CE or other resource management agencies. The objectives, scope, and types of management activity will be identified for these resources. Project personnel will also be asked to identify anticipated future changes in natural resource emphasis, scope, and activities in the next 10 years. A summary of the results will

be used to identify the predominant areas of natural resource management at the regional and national levels.

In response to recommendations by the steering committee, the survey will include the following list of natural resources that are actively managed directly or indirectly by the Corps:

- Threatened and endangered species.
- Wildlife and fishery resources.
- Water resources.
- Forestlands.
- Wetlands.
- Riparian zones.
- Prairies/grasslands.
- Scrub/shrub habitats.
- Cultural/paleontological resources.

This survey will address the degree of oversight given to outgranted natural resources. This is a special concern at some projects because endangered species management, erosion control, and other basic stewardship responsibilities may be neglected in outgrant programs. The survey will also identify institutional constraints and limitations, as well as opportunities, for natural resources management. Other topics to be investigated include cost sharing, volunteers, and partnerships.

Task 3: Utilize Task 1 and 2 Information: A Case Study Assessment of the Management of Threatened and Endangered Species on CE Projects

Rationale

Threatened and endangered (T&E) species constitute a significant resource which, because of statutory requirements and stewardship responsibilities, must be given important consideration in the management of CE water resource development projects. Currently, the regional and national prevalence of T&E species and broad management opportunities for these species at CE projects are not well understood. Developing an understanding of the management

opportunities for T&E species that exist on CE projects will assist managers in evaluating management options and establishing management priorities.

Objectives

This task will identify and evaluate general opportunities for management of T&E species on CE projects. The task will consist of the following steps:

a. Evaluate the findings from Task 2 and identify target species and regions to include in the assessment. (This step will be performed in coordination with the steering committee.)

b. Identify the scope and extent of management activities for target T&E species and their habitats on CE projects.

c. Evaluate management potential and opportunities for target T&E species and their habitats on CE projects.

d. Develop general guidelines for managing selected T&E species and their habitats on CE projects.

Approach

The survey performed in Task 2 will be designed to include pertinent questions on the protection and management of T&E species on CE projects. T&E databases maintained at Headquarters, USACE, and in other Corps offices will also be examined. The results of the survey and other information will then be synthesized to identify regional T&E species of concern on project lands and to assess current efforts for managing sensitive species and their habitats.

The potential for managing T&E species on CE lands will be evaluated regionally and by project type and setting. For example, projects with significant land holdings in more rural areas may create different opportunities to support populations of T&E species than smaller, more linear projects close to urban centers. Existing management practices for T&E species will be identified, and variation in management among projects will be assessed. Two to three regions will be selected for a more detailed assessment of T&E species concerns on project lands.

Opportunities for T&E management consistent with project operational requirements will be evaluated. This aspect of the study will require close coordination and interaction with Headquarters and Division/District offices, with guidance from the steering committee. The major product from this effort will be a set of generic guidelines on managing selected T&E species and their habitats on CE projects. Guidelines will be presented in a "user friendly" format to facilitate rapid and routine use by field managers.

Benefits

The products of this research work unit will include three Technical Notes and a final comprehensive Technical Report that will provide the CE with an accounting of natural resources management practices on CE landholdings and a summary of the natural resources recognized as nationally and regionally important on lands managed by the CE. The Technical Report will set forth general guidance that Project Managers may consider when attempting to assess the significance of natural resources being managed, prepare Operational Management Plans, and set budget priorities. A major product will be the set of generic guidelines for managing selected T&E species and their habitats on CE projects. All of these information tools will be useful in the preparation of national policy and in making difficult decisions when conflicts surface between public use and natural resources stewardship.

Coordination

The study will be extensively coordinated with Headquarters, USACE, and all field levels of the CE. This will be accomplished primarily through the work of the steering committee. These individuals represent disciplines typical of CE recreation and natural resource positions, have demonstrated experience in project operation and management, and represent a geographic cross section of CE projects. They have been tasked to review the Plan of Study, status reports, program documentation, study designs, results of various study elements, and project reports and articles. Meetings will be held periodically to discuss the progress of the work unit.

Segments of the project will also be coordinated with various Federal and state agencies and, to some extent, private organizations. Initial coordination with other agencies will consist of an overview of the project. The study team will respond to the interest of agencies in specific segments of the study as appropriate. For example, any actions that potentially involve threatened and endangered species or their habitats will be coordinated with the U.S. Fish and Wildlife Service. Also, aspects of wildlife and fisheries management will be coordinated with the appropriate state agency. In some cases, management decisions on CE lands will involve negotiations with Federal agencies that have jurisdiction over adjacent lands which are otherwise related to CE management (e.g., U.S. Forest Service, National Park Service) or private conservation organizations (e.g., The Nature Conservancy).

The findings of Study Tasks 1 and 2 and the case study performed as Task 3 will, if warranted, serve as the basis for recommending additional case studies as appropriate. The steering committee will be assembled to review the initial study approach presented in this document and participate in key decision points throughout the study process. Figure 2 summarizes the study organization. Major milestones and activities are outlined in Table 1.

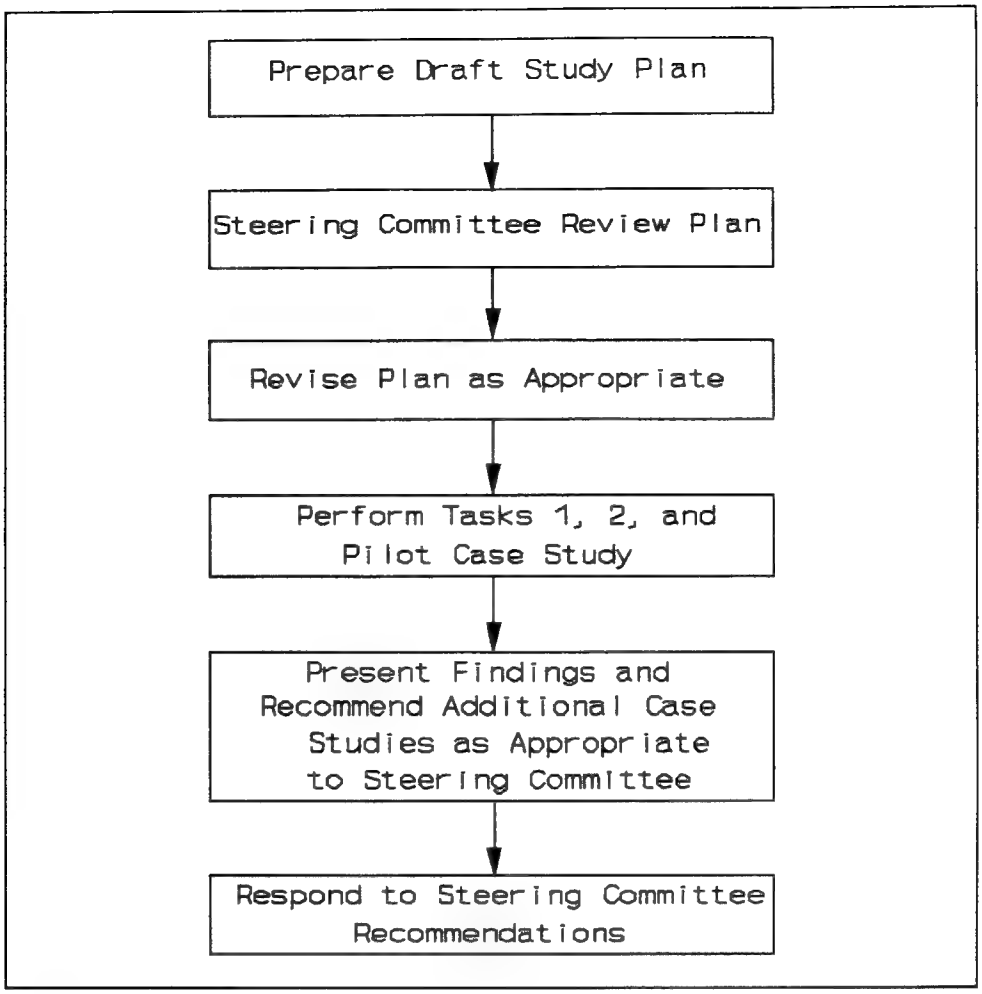


Figure 2. Study organization

Table 1
Major Milestones and Activities

Milestone/Activity[1]	Scheduled Completion Date
Formation of Steering Committee[2]	
Committee Approval of Study Plan	9408
Submittal of Final Study Plan	9412
Task 1 - Document Acquisition and Review[2]	
- Evaluation of Priorities Assessment Criteria[2]	
- Draft Technical Note on Resource Significance	9512
Task 2 - Final Survey Plan	9504
- Completion of Management Activities Survey[2]	
- Draft Technical Note on Survey Results	9606
Task 3 - Synthesis of Survey Data on T&E Species[2]	
- Draft Technical Note on T&E Species	9707
Refereed Journal Article	9706
Draft Comprehensive Technical Report	9709

[1] Milestone schedule in accordance with RDMIS documentation (Work Unit 32891).
[2] Activities required to accomplish work unit milestone.

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Appendix A
Steering Committee Report

Steering Committee Recommendations Concerning The Scope and Potential Applications of The Natural Resources Research Program Work Unit #32891, "An Assessment of Recreation and Natural Resources Managed by The Corps of Engineers"

A Report of the U.S. Army Engineer Waterways Experiment Station, Environmental Laboratory from the Steering Committee.

Roy Proffitt (Chairman), Park Manager, Lake Sakakawea;
David Brady, Wildlife Biologist, Savannah District;
Phil Benge, Outdoor Recreation Planner, Walla Walla District;
Jude Harrington, Supervisory Park Ranger, Raystown Lake;
Don Wiese, Forester, Fort Worth District

Principal Investigator, Scott Jackson, CEWES-EN-R

August 1994

Introduction

The steering committee, appointed by the Natural Resources Research Program (NRRP) field review group and technical monitor convened at WES on 3-5 Aug 94 to review and offer recommendations on the scope and potential applications of Work Unit 32891.

Scope of Research

As stated in the Program Documentation Problem Statement, the Corps of Engineers (CE) manages nationally important natural resources and recreation programs. National survey data have documented that 30% of recreation use of Federal lands takes place on the comparatively small natural resource base managed by the CE. The significant economic impact of the CE recreation program has been documented through research at WES. While the national significance of the CE recreation program is unquestioned and well documented, the steering committee unanimously agrees there is a lack of information on the regional and national significance of the natural resources which support the recreation program and related activities occurring on CE lands and waters. This lack of information is reflected in the absence of a national data base describing the quantitative and qualitative scope of CE-managed natural resources. Consequently, the steering committee endorses an objective for Work Unit 32891 which calls for the research to focus solely on the natural resources base (land, water, fish and wildlife) managed by the CE. As outlined in the Plan of Study, the steering committee concurs in the approach to: a) examine available literature to determine which resources are considered nationally or regionally significant; b) poll a representative sample of Corps projects to determine current natural resources management priorities; c) profile the existing status of Corps-managed natural resources with respect to national and regional significance; and d) develop a methodology for use by Project and District personnel to determine the national and regional significance of the natural resources they manage.

Continuing to operate water resources projects without a sense of the regional and national significance of the natural resources base will jeopardize the agency's ability to fulfill the recently approved natural resources management program mission statement. For example, decisions which will be necessary to implement an ecosystem approach to natural resources management will be severely hindered without fully understanding the scope and significance of the natural resources being managed. Should the field review group and technical monitor concur in this fundamental change in the scope of Work Unit #32891, the steering committee recommends the unit title be changed to omit the term "recreation."

Guiding Principles

The steering committee recommends the following general guidelines for completion of Work Unit #32891.

a. The information and products resulting from this effort should be useful to Projects and Districts in their daily work, especially in the preparation and revision of OMPs, budgets, and environmental assessments of proposed land use. The information should also be useful to Divisions and HQUSACE in preparing Congressional testimonies and national guidance.

b. Avoid use of complex methodologies and scenarios. Keep the products simple and therefore keep the time frame short and costs down.

c. The process by which the research is conducted and the resulting information and products must be flexible and easily replicated for future needs and updates.

d. Products should be designed for convenient inclusion in the NRMS, OMPs, and other existing Corps programs and databases.

e. Use of resulting products should be designed for practical implementation at the Project level.

f. The American Recreation Coalition has promoted the idea of a "National Lakes System." This idea should not be lost as we proceed with this work unit. The collection and analysis of information should provide some of the information we need to answer the question, "What does it take to qualify as a National Lake?"

Specific Recommendations

The steering committee concurs with the conceptual framework of the three study tasks described in the Plan of Study. Recommendations for completion of each task are listed as follows:

a. Task 1:

(1) Focus on the national and regional significance of CE lands, water, fish and wildlife. Significance criteria used by USFS, SCS, USFWS, BLM, NPS, EPA, and state Natural Heritage Programs and Nature Conservancy, among others, should be identified and analyzed. To cut costs and save time, the research effort should make maximum use of existing data.

(2) Give considerable weight to the collection and analysis of information on a regional basis which closely parallels ecologically-based mapping systems currently under consideration by an interagency Ecosystem Management Coordination Group. Given the watershed/basin organization of Corps Divisions and Districts, this recommendation should be relatively simple to implement. (Note: Denise White, CECW-ON is participating in this coordination group.)

(3) The identification and analysis of cultural resources data is not addressed. The steering committee recommends inclusion of cultural resources in the work unit if the research budget is adequate to meet this need. If not, the rationale for omission of cultural resources should be explained.

(4) A significant number of state-managed Natural Heritage Programs should be identified and analyzed as part of the objective to provide generalizations about national and regional natural resources priorities.

(5) Task 1 should include a search and analysis of criteria by which the significant visual and aesthetic natural resources is measured. Both the Forest Service and U.S. Department of Transportation have developed such criteria.

(6) Examine state and EPA listings/rankings of water quality. Are Corps lakes significant?

b. Task 2:

(1) The number of Corps projects included in the national survey should be increased to 20-30%. A personal interview of 2-4 Projects should be conducted to fine-tune the survey prior to national distribution of the survey questionnaire.

(2) The survey should include the following list of natural resources that are actively managed directly or indirectly by the Corps:

(a) Threatened and Endangered Species.

(b) Wildlife.

(c) Forests.

(d) Cultural/Paleontological (if in work unit).

(e) Wetlands.

(f) Riparian Zones.

(g) Prairies/Grasslands.

(h) Fish.

(i) Scrub/Shrub Habitats.

(3) The survey should address the degree of oversight given to outgranted natural resources. A concern is that endangered species management, erosion control, and other basic stewardship responsibilities are ignored on some areas.

(4) The survey should address institutional road blocks to natural resources management, i.e., give projects the chance to identify "opportunities lost" in the management of natural resources. An example is the lack of true commitment by the Corps to participate in the NAWMP.

(5) Target natural resources specialists at Projects and Districts for confidential information concerning scope and intensity of management.

(6) Ask the following type of questions to determine the intensity of management and degree of commitment to manage:

(a) How many FTE are allocated to natural resource management?

(b) Are natural resource management initiatives included in budgets?

(c) Are budget requests approved? And, if approved, is the money spent on natural resources management or funnelled into other programs? (Note: Results from the Career Development Task Force may be helpful in analysis of answers to above questions.)

(d) Do Park Rangers assigned natural resource management responsibilities have backgrounds or experience that have credibility with resource agencies?

(7) The objective to identify changes in natural resources management planned or anticipated in next 10 years should address the following issues.

(a) Are outgranted natural resources likely to be turned back to the Corps? Give brief history of previous turnbacks.

(b) What is your perception of an Ecosystem Approach to management?

(c) Emphasis on management of threatened and endangered species.

(d) Basic Corps philosophy toward natural resources.

(e) Look beyond CE boundaries; implications for management of Project lands. (For example, will endangered species on private land, or non-point source pollution on private land play a significant role in the way we manage our lands?)

(f) Cost sharing.

(g) Volunteers.

(h) Partnerships.

c. Task 3:

(1) The proposed case study of the bald eagle should be deleted. The steering committee's main objection to the bald eagle case study is the lack of opportunity for the Corps to actively manage for this species...most management initiatives for the eagle are reactive, not proactive. In place of the bald eagle case study, the steering committee recommends a case study of overall threatened and endangered species management initiatives on CE lands.

(2) Develop a step-by-step methodology for evaluating management potential for significant natural resources. The methodology(s) should be useful to Project personnel in the preparation of OMPs.

Desired Products

The following products would be useful for application at all levels:

- An annotated bibliography of sources describing methodologies used to determine significance of natural resources by region.
- A simple methodology (step-by-step procedure) for determining significance.
- A technical report describing findings.
- If funding permits, produce a videocassette which briefly describes the Plan of Study, the results, and potential applications. This video should be distributed with the technical report.

- WES and the steering committee should present results of this work unit at the nationwide Natural Resources Management Conference or (preferably) the nationwide meeting of the Chiefs of Con-Ops. Findings of this work unit as well as others should be included in a briefing of the ASA Civil Works office.

Benefits

Most of the benefits of this work unit have been mentioned in previous paragraphs and have been described in the Plan of Study. Additional benefits discussed at the steering committee meeting include:

- A valuable tool for use at all levels in preparing OMPs, budgets, testimonies and guidance.
- Very useful information to be used in the completion of work recommended by current natural resources management initiatives task force (see Denise White, CECW-ON, for details).
- Identify implications of CE management actions.
- Set management priorities which reflect demands (help us to identify those management initiatives with the greatest payoff potential).
- Integrate management actions into other CE functions and other private and public natural resource management programs.
- Perhaps most significantly, the results of this work unit will help us safeguard natural resources that may have been drastically impacted by past use and/or management practices and policy. It may help us make tough decisions to close or exclude from public use those areas that are most sensitive.

In general terms, the results of this research will help Project Managers and administrators alike to prioritize programs and policies. Some may argue that project master plans have ranked the significance of the natural resources base. The reality is that national priorities and legislation have caused pertinent sections of most master plans to become dated. Furthermore, it could be argued that even recent master plans do not contain information ranking the national and regional significance of a Project's natural resources.

Conclusion

The steering committee considers this research effort to be very necessary and timely. By focusing solely on the natural resources base, available funds will be applied to the collection, analysis and, ultimately, the management of a

major CE program which has historically been a low priority within the agency.

Future Steering Committee Participation

- Review of Project survey prior to release.
- Review revised Study Plan.
- Mid-course study review.
- Possible participation in presentation to Field Review Group and at Program Review.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	October 1995	Final report

4. TITLE AND SUBTITLE
An Assessment of Natural Resources Managed by the Corps of Engineers: A Plan of Study

5. FUNDING NUMBERS

6. AUTHOR(S)
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7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
U.S. Army Engineer Waterways Experiment Station
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

8. PERFORMING ORGANIZATION REPORT NUMBER
Miscellaneous Paper
R-95-2

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Corps of Engineers, Washington, DC 20314-1000

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES
Available from National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

Natural resources managed by the U.S. Army Corps of Engineers (CE) constitute an important national heritage that must meet constantly changing needs and priorities. However, there is presently insufficient information regarding the overall status of CE natural resources, the significance of these resources at the national and regional levels, and the ability of current programs to satisfy changing trends while continuing to meet mission objectives. A study plan is presented that provides an approach for obtaining the information necessary to assess significance and establish natural resource priorities at CE operational projects.

The study is divided into three tasks that address natural resource needs: identify regionally and nationally significant resources, identify CE natural resource practices and priorities, and conduct a case study to identify the significance of CE management activities related to a specific resource. Task 1 will be accomplished by reviewing relevant assessments and other documents that evaluate the significance of selected resources. Task 2 will consist of a survey of natural resource management activities at a representative sample of CE projects. The purpose of this task is to describe natural resource management activities at CE projects, identify management opportunities for significant resources, and determine how the CE is responding to changing needs. The case study will identify and

(Continued)

14. SUBJECT TERMS		15. NUMBER OF PAGES
Corps of Engineers	Threatened and endangered species	30
Natural resources	Water resources projects	16. PRICE CODE
Significance		

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
UNCLASSIFIED	UNCLASSIFIED		

13. (Concluded).

evaluate opportunities for management of threatened and endangered species on CE projects, using information derived from Tasks 1 and 2. Procedures are described for accomplishing each phase of the study. A steering committee composed of five CE District and project personnel was established to provide recommendations on the scope and direction of the study. The work unit is under the CE Natural Resources Research Program.